

A new ice sheet reconstruction (Fig. 1) is being used for the LGM simulations, which blends together several recent model-based reconstructions (Abe-Ouchi et al., unpublished). Recent syntheses of surface temperatures from oceans and land and other data (Fig. 1) are being used to provide important constraints on models' climate sensitivity, polar amplification, ocean versus land response, the hydrological cycle and interannual to multi-decadal variability. These and other data sets, such as vegetation distribution, fire regimes and peatland carbon accumulation, will be made available via the PMIP3 web site (<http://pmip3.lscce.ipsl.fr>). Missing data sets or ones that will require additional work in the coming year were identified at the Kyoto meeting, the most vital of these being a synthesis of short-term (interannual to interdecadal) climate variability during the LGM, the mid-Holocene and the last millennium. The PAGES 2k initiative (<http://www.pages.unibe.ch/workinggroups/2k-network>) is expected to take the lead on the last-millennium

synthesis. Compilations of deep-sea data, such as carbon isotopes for the LGM, are also planned and will provide constraints on modeled ocean circulation and carbon cycle.

CMIP5 simulations are not the only focus in PMIP. New in the set of PMIP experiments are warm periods such as the Pliocene, the Eocene, the Last Interglacial and transient simulations of the Holocene and the Last Interglacial, which have obvious relevance to a future warmer world. Another new focus is on transient simulations of the last deglaciation and freshwater hosing experiments, such as the 8.2 ka event and Heinrich event H1. These experiments and model-data comparisons will provide new estimates of forcing thresholds that influence polar amplification, the low-latitude hydrologic cycle, and the relationship between ice sheets and sea level under different climate states. The transient experiments represent an important step towards a better understanding of the dynamics and temporal response of the different components of the climate system.

In the next two years, PMIP will be sponsoring a series of small workshops, including ones focusing on the compilation of new data sets, on the last-millennium carbon cycle (PCMIP), on benchmarking the CMIP5 simulations, and on data-model comparisons for the Pliocene (PlioMIP). In addition, PMIP will continue to hold annual meetings bringing the paleoclimate modeling community together to discuss progress on all of the PMIP foci.

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For full references please consult:

[http://www.pages-igbp.org/products/newsletters/ref2011\\_2.pdf](http://www.pages-igbp.org/products/newsletters/ref2011_2.pdf) 

## The 3<sup>rd</sup> Eastern Africa Quaternary Research Association workshop

Zanzibar, Tanzania, 7-12 February 2011

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The workshop was hosted by the Institute of Marine Sciences of the University of Dar es Salaam. It was attended by 55 participants (Fig. 1) from 17 countries and received coverage in local media including Radio television Zanzibar and newspapers. The workshop was generously supported by the Directorate of Research of the University of Dar es Salaam, INQUA, Paleontological Scientific Trust (PAST), and Past Global Changes (PAGES).

The official opening was attended by the Permanent Secretary of the Ministry of State in the President's Office Public Services and Good Governance, Mr. Joseph Meza on behalf of the Minister Hon. Haji Omar Kheri. The workshop was officially concluded by the Director of Records and Archive Mr. Hamad Omar.

Mr. Meza underscored the importance of EAQUA as a regional body that fosters Quaternary Science research in East Africa. He pointed out that the treasures of the rich archeological and anthro-

logical history of Eastern and Central Africa has not yet been fully unearthed owing to a lack of capacity and resources, thus requiring multidisciplinary coop-

eration and capacity development. Such treasures could help to fight poverty through promotion of ecotourism. He also reminded participants to reflect on how



Figure 1: EAQUA meeting participants

far EAQUA has achieved its mission of enhancing growth of the Quaternary science community in the region through training, collaborative research and information exchange. Participants were urged to come up with tangible results, such as student exchange programs and joint proposals. He challenged the Institute of Marine Sciences of the University of Dar es Salaam to develop a postgraduate program in maritime archeology, which could boost archeological studies in the entire Great Lakes Region.

The EAQUA workshop was preceded by a one day INQUA/EAQUA meeting with presentations from INQUA, Pan African START Secretariat (PASS) and EAQUA country representatives. INQUA presented objectives, activities and available opportunities for the EAQUA members to participate in the programs of the commissions. PASS presented opportunities to the members for training and research, for example, the African Climate Change Fellowship Program (ACCFP) and the Educa-

tion Program on Climate Change and Biodiversity Conservation. Participants were urged to take a leading role in utilizing these opportunities. Country representatives reported on Quaternary research activities in the region and felt that more capacity building is required.

The general theme of the 3<sup>rd</sup> EAQUA workshop was "On- and off-shore: Eastern Africa during the last 100 ka". The workshop had 40 oral and 5 poster presentations. Talks were divided into six sessions namely (i) Marine and lacustrine records and reconstruction, (ii) Techniques and methodological development in Quaternary research, (iii) Paleoclimate reconstruction, (iv) Vegetation reconstruction (v) Recent trends in climate change-Impacts and vulnerability assessment for eastern Africa, and (vi) Trade, anthropology and archeological studies in Eastern Africa. Time was also allocated for a roundtable discussion where several priority areas of research were identified: (i) Compilation of modern archives of climatic re-

records for the last millennia, (ii) Reconnaissance program to establish caves hosting speleothems, (iii) Creation of a database of Quaternary scientists and projects working in eastern Africa; (iv) Archeology, environment and Humans focusing on issues such as hydrology, vegetation, fire, human-climatic influences, and others. Additionally, the need for several focused meetings with a progressive agenda was emphasized.

The EAQUA workshop concluded with a discussion of association matters, including the election of executive members. Elected for a period of 2 years are: Prof. Mohammed Umer (President), Prof. Alfred N.N. Muzuka (Vice President), Ms Christine Ogolla (Secretary General), Ms Jackline Nyiracyiza (Treasurer), Prof. Asfawossen Asrat (News Letter Editor), Dr. Immaculate Ssemmanda (National Representative (NR Uganda), Ms. Rahab Kinyanjui (NR Kenya), Elgidius Ichumbaki (NR Tanzania), Dr. Julius Lejju (Ex-Officio), Dr. Margareth Avery (INQUA).

## Multidecadal and centennial ENSO variability

San Diego, USA, 3-4 September 2010

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ENSO is the largest signal of sub-annual climate variability in the Pacific Ocean, affecting not only coastal but also inland locations. Its torrential rains and severe droughts result in economical losses of several hundred millions of dollars in affected countries, from the USA and Mexico to southern South America and as far as Australia. The increase of ENSO frequency and intensities during the second part of the 20<sup>th</sup> century has affected various sectors, from agriculture to health, from fisheries to the economy. Thus understanding, and ultimately forecasting ENSO variability, has an enormous potential societal benefit.

Although ENSO knowledge has been expanding enormously during last few years, scientists have not yet developed joint and interdisciplinary efforts to better reconstruct and model multidecadal and centennial climate variability (MCEV). The long-term trends that have been reconstructed through numerous proxy variables have neither been analyzed nor modeled well enough to understand the mechanisms required for long-term forecasts. The present trend towards more

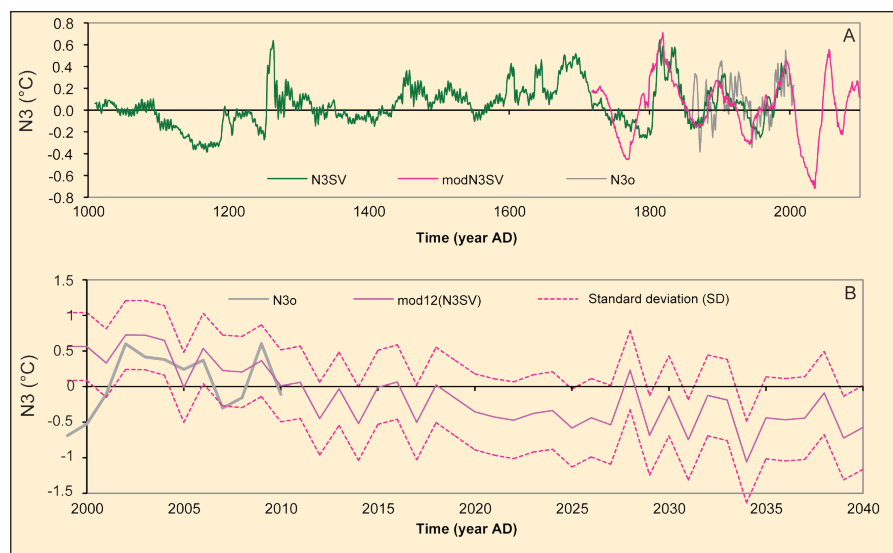


Figure 1: Comparison of three ENSO ( $N_3$  annual average) models. **A)** 21-year moving average smoothed series. The green line ( $N_3s$ ) is the 1000-1999 AD Zebiak-Cane (ZC) model by Mann et al. (2005). The pink line ( $N_3SV$ ) was obtained from an ensemble's average of ZC simulation forced by volcanic and solar activity. The gray line ( $N_3o$ ) represents smoothed observation data for the last 150 years. **B)** Zoom of the annual (non-smoothed)  $N_3SV$  same model, as A), over 2000-2040 AD and validation with independent observational data. Figure adapted from Sánchez-Sesma (2010).

La Niña events, with more rainfall and tropical cyclones (as 2010 showed us) is highlighting the need to take into account different aspects of ENSO (such as multidecadal trends or ocean-atmosphere

interactions) and merge the knowledge from proxy reconstructions, physical and mathematical simulations, non-linear climate analyses and socio-economical research to better understand, predict, and